ACCESSION #: 9206100163
LICENSEE EVENT REPORT (LER)

FACILITY NAME: COMANCHE PEAK-UNIT 1 PAGE: 1 OF 08

DOCKET NUMBER: 05000445

TITLE: REACTOR TRIP CAUSED BY PERSONNEL ERROR DURING TESTING
EVENT DATE: 05/08/92 LER #: 92-009-00 REPORT DATE: 06/04/92

OTHER FACILITIES INVOLVED: N/A DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 093

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: D. E. BUSCHBAUM, COMPLIANCE TELEPHONE: (817) 897-5851
SUPERVISOR

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS: N

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

At 2304 on May 8, 1992, instrumentation and Control (I&C) Technicians began channel calibration of the Loop IV N-16 Power Monitor Module (PMM) by placing the bistables in test. At 2308, the I&C Technicians opened the power supply breaker to the Loop II N-16 PMM instead of the Loop IV N-16 PMM. At 2309, the Loop II N-16 PMM power supply was restored, causing a spike that, along with the Loop IV N-16 bistables in test, met the logic coincidence requirements for a reactor trip.

Root cause of the event was personnel error. Contributing factors involved common key access to the N-16 cabinets and first time performance of this calibration by the individuals involved. Corrective actions included implementation of the appropriate level of the Positive Discipline Program for the individuals involved, a modification to the cabinet locking scheme, and observation of individuals performing sensitive tasks for the first time.

END OF ABSTRACT

I. DESCRIPTION OF THE REPORTABLE EVENT

A. REPORTABLE EVENT CLASSIFICATION

Any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS)(EIIS:(JC)).

B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT

On May 8, 1992, Comanche Peak Steam Electric Station (CPSES) Unit 1 was in Mode 1, Power Operation, with reactor power at 93 percent.

C. STATUS OF STRUCTURES, SYSTEMS, OR COMPONENTS THAT WERE INOPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO THE EVENT

There were no inoperable structures, systems or components that contributed to the event.

D. NARRATIVE SUMMARY OF THE EVENT, INCLUDING DATES AND APPROXIMATE TIMES

At 2247 on May 8, 1992, Instrumentation and Control (I&C) Technicians (utility, nonlicensed) received permission from the Unit Supervisor (utility, licensed) to perform the channel calibration of the Loop IV N-16 Power Monitor Module (PMM)(EIIS:(CAB)(JC)). There are four independent and separate PMMs. The calibration to be performed involved placing the Loop IV N-16 bistables in test, which induces a one of four coincidence reactor trip signal. An actual reactor trip occurs when a two of four coincidence reactor trip signal is generated.

At 2304 on May 8, 1992, the I&C Technicians placed the Loop IV N-16 bistables in test. After verifying correct annunciation on the Main Control Board (EIIS:(MCBD)(IB)) the I&C Technicians returned to continue the channel calibration of the Loop IV

N-16 PMM. The next step in the procedure involved going to a different N-16 cabinet and opening the power supply breaker (EIIS:(BKR)(EC)). At approximately 2308, the I&C Technicians went to the wrong N-16 cabinet and opened the power supply breaker for the Loop II N-16 PMM. Indication received in the Control Room was that Loop II N-16 had failed low. The Unit Supervisor, anticipating that a failed low Loop II N-16 and work in progress on Loop IV N-16 may result in a reactor trip, immediately proceeded to the N-16 cabinet area and directed the I&C Technicians to stop work and to back out of their Loop IV N-16 test as quickly and safely as possible. The I&C Technicians re-energized the Loop II N-16 power supply, still thinking they were working on Loop IV N-16. Re-energizing Loop II N-16 caused a spike that tripped the Loop II N-16 bistables and met the logic coincident requirements for a reactor trip. As a result, at 2309 on May 8, 1992, the reactor tripped.

Following the trip, Control Room personnel responded in accordance with emergency operating procedures. Plant systems responded as expected, except for the situation discussed below. The plant was stabilized in Mode 3, Hot Standby, at approximately 0214 on May 9, 1992. An event or condition that results in an automatic actuation of any ESF, including the RPS, is reportable within 4 hours under 10CFR50.72(b)(2)(ii). At 0218 on May 9, 1992, the Nuclear Regulatory Commission Operations Center was notified of the event via the Emergency Notification System.

Following the reactor trip, the west bus of the switchyard (EIIS:(FK)) de-energized as designed; however, the transmission line breaker (8010) (EIIS:(BKR)(FK)) failed to automatically reclose and re-energize the bus due to an out of calibration relay (EIIS:(51)(FK)). The relay was subsequently recalibrated, the breaker returned to service, and the west bus re-energized. This subsequent event did not affect the reactor trip recovery.

E. THE METHOD OF DISCOVERY OF EACH COMPONENT OR SYSTEM FAILURE,
OR PROCEDURAL OR PERSONNEL ERROR

The reactor trip was annunciated by numerous alarms in the Control Room. Upon investigation of the cause of the reactor trip the unit supervisor discovered that the I&C Technicians had placed the Loop IV N-16 bistables in test, as required; however, had de-energized the power supply to the Loop II N-16 PMM instead of the Loop IV N-16 PMM. When power to the Loop II N-16 PMM was restored, a spike occurred that met with the logic coincidence requirements for a reactor trip, resulting in the reactor trip.

II. COMPONENT OR SYSTEM FAILURES

A. FAILURE MODE, MECHANISM, AND EFFECT OF EACH FAILED COMPONENT

Not applicable - there were no component failures associated with this event.

B. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE

Not applicable - there were no component failures associated with this event.

C. SYSTEMS OR SECONDARY FUNCTIONS THAT WERE AFFECTED BY FAILURE OF
COMPONENTS WITH MULTIPLE FUNCTIONS

Not applicable - there were no failed components with multiple functions that affected this event.

D. FAILED COMPONENT INFORMATION

Not applicable - there were no component failures associated with this event.

III. ANALYSIS OF THE EVENT

A. SAFETY SYSTEM RESPONSES THAT OCCURRED

The calibration being performed placed the Loop IV N-16 bistables in test, which induced a one of four coincidence reactor trip signal and a one of four coincidence low average temperature (Lo-TAVG) signal. The spike that occurred when the Loop II N-16 power supply was re-energized resulted in a two of four coincidence Lo-TAVG signal that, coincident with the reactor trip signal, resulted in a feedwater isolation signal. With the feedwater system (EIIS:(SJ)) isolated, level in the steam generators (EIIS:(SG)(SB)) decreased to the Lo-Lo level setpoint. As a result, a Lo-Lo steam generator level signal was generated, resulting in an ESF actuation; actuating the Auxiliary Feedwater System (EIIS:(BA)). Associated components within these systems functioned as designed.

B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

Not applicable - there were no safety systems which were rendered inoperable due to a failure.

C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

The reactor trip was the result of personnel error and was not required to mitigate an actual event. This event is best described in Section 15.2.3 of the CPSES Final Safety Analysis Report (FSAR). The analysis uses conservative assumptions to demonstrate the Departure from Nucleate Boiling Ratio will never decrease below the limiting value of 1.30 during the event. The event of May 8, 1992, occurred at 93 percent reactor power, and all protective functions responded as required. The event is completely bounded by the FSAR accident analysis. The event of May 8, 1992, did not adversely affect the safe operation of CPSES Unit 1 or the health and safety of the public.

IV. CAUSE OF THE EVENT

ROOT CAUSE

Root cause of the event was personnel error (less than adequate self checking). The I&C Technicians failed to ensure they were accessing the correct N-16 cabinet. As a result, the Loop II N-16 instead of the Loop IV N-16 power supply was de-energized.

CONTRIBUTING FACTORS

1. The N-16 cabinets are locked, and opened, with a common key. The Technicians involved in this event had this key and thereby had access to all four N-16 cabinets.

2. The I&C Technicians performing the channel calibration were qualified, however, had not performed this calibration prior to this event.

V. CORRECTIVE ACTIONS

A. CORRECTIVE ACTIONS TO PREVENT RECURRENCE

ROOT CAUSE

Personnel error.

CORRECTIVE ACTION

The appropriate level of the TU Electric Positive Discipline Program was implemented for the individuals involved.

CONTRIBUTING FACTOR - 1

Access to all four N-16 cabinets is possible via a common key.

CORRECTIVE ACTION - 1

A modification to the cabinet locking scheme for the appropriate sensitive cabinets has been initiated. As an interim measure, a licensed operator will verify personnel are entering the proper cabinet for all sensitive cabinets in the Control Room envelope, until the locking scheme is changed.

CONTRIBUTING FACTOR - 2

The I&C Technicians performing the calibration were qualified, however, had not performed the calibration in the field.

CORRECTIVE ACTION - 2

The first time performance of sensitive tasks will be completed under observation of an individual who has previously performed the evolution. When not possible, increased supervision will be utilized.

B. CORRECTIVE ACTION TAKEN ON GENERIC CONCERNS IDENTIFIED AS A DIRECT RESULT OF THE VENT

Less than adequate self checking/verification has been a root cause in other events.

CORRECTIVE ACTION

A task team was formed to address the personnel error in this and other similar events. Immediate corrective actions that were taken as the result of this event were as follows:

o Appropriate CPSES personnel were trained and tested, by their supervision, on their knowledge and practice of the self verification process.

o Appropriate CPSES personnel were re-instructed on Management's expectations concerning independent verification.

o Increased supervisor and management participation in work related activities.

Additional corrective actions will be implemented as identified by the task team.

VI. PREVIOUS SIMILAR EVENTS

Sixteen CPSES Licensee Event Reports (LER) describe previous events that involved a reactor trip. Of these events, three (LER 90-29,91-04,91-08) involved reactor trips caused by a personnel error (less than adequate self checking). As a result, a task team was formed to address the generic concern of why personnel errors continue to occur. See the corrective actions taken on generic concerns listed above.

VII. ADDITIONAL INFORMATION

The times listed in the report are approximate and Central Daylight Time.

Log # TXX-92250
File # 10200
Ref. # 10CFR50.73(a)(2)(iv)
TUELECTRIC
June 4, 1992

William J. Cahill, Jr.

Group Vice President
U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NO. 50-445
MANUAL OR AUTOMATIC ACTUATION OF ANY
ENGINEERED SAFETY FEATURE
LICENSEE EVENT REPORT 92-009-00

Gentlemen:

Enclosed is Licensee Event Report 92-009-00 for Comanche Peak Steam Electric Station Unit 1, "Reactor Trip Caused by Personnel Error During Testing."

Sincerely,

William J. Cahill, Jr.

NSH/tg
Enclosure

c - Mr. R. D. Martin, Region IV
Resident Inspectors, CPSES (2)

P. O. Box 1002 Glen Rose, Texas 76043-1002

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